

# Reduced memory vividness remains linked to preserved episodic specificity in aphantasia

Elisa Balthasart<sup>1,2</sup>, Emma Delhay<sup>†1,3</sup>, Christine Bastin<sup>†1,2</sup>  
<sup>1</sup>Memory and Pathological Aging Lab, GIGA-CRC Human Imaging, University of Liège  
<sup>2</sup>PsyNCog, Faculty of Psychology, University of Liège  
<sup>3</sup>CICPSI, Faculty of Psychology, University of Lisbon  
<sup>†</sup>Equal contribution



elisa.balthasart@uliege.be

## Introduction

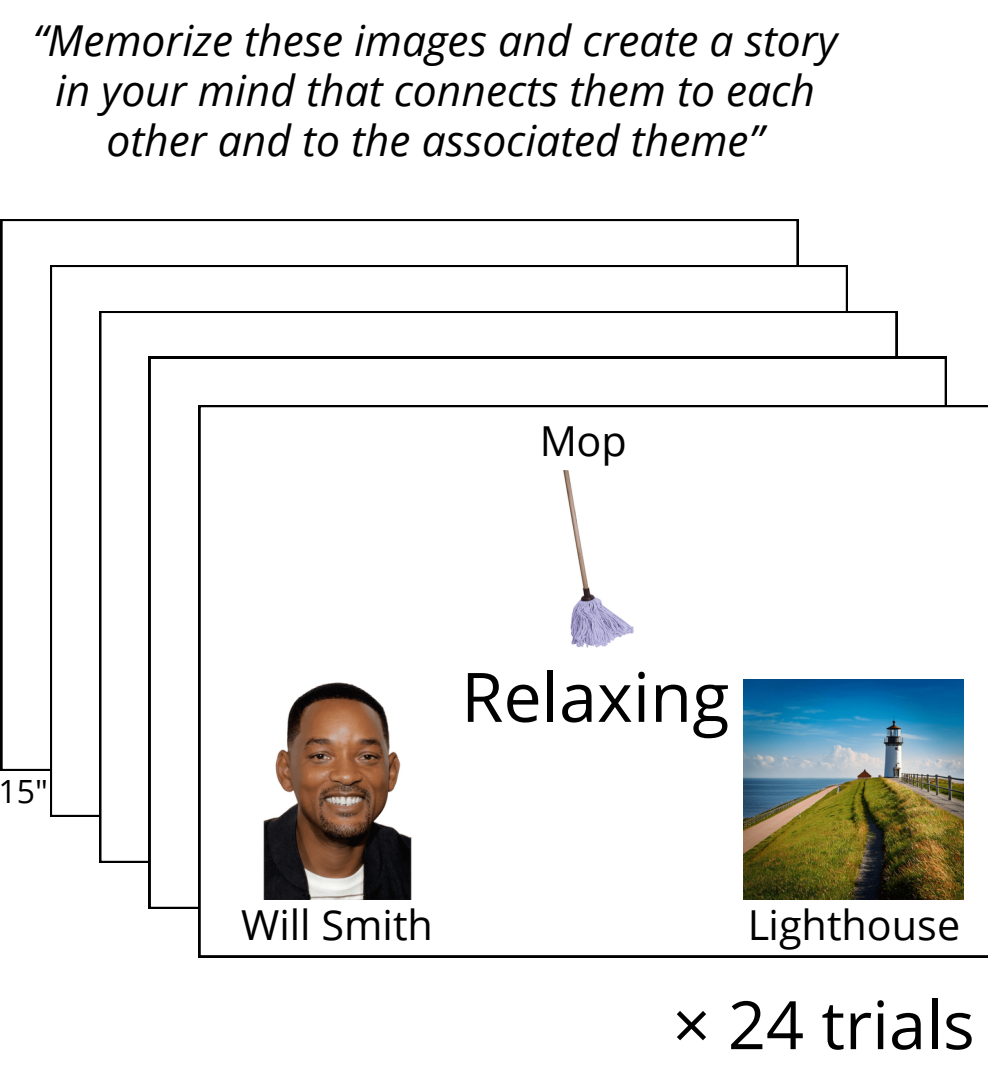
Individuals with **aphantasia** report less vivid memories despite preserved objective memory accuracy<sup>1</sup>. Their memories have been described as more gist-based and less perceptually detailed<sup>2</sup>. Such qualitative differences in episodic representations may influence the extent to which gist and details contribute to subjective vividness. We aimed to investigate whether gist memory contributes more strongly to subjective vividness in individuals with aphantasia than in controls, with a reduced contribution of detail memory.

## Methods

|                  | Control       | Aphantasic      |
|------------------|---------------|-----------------|
| N                | 71            | 72              |
| Age              | 34.52 (12.05) | 33.24 (11.24)   |
| VVIQ             | 61.77 (9.84)  | 19.15 (4.86)*** |
| Memory vividness | 3.64 (1.07)   | 3.03 (1.11)***  |

\*\*\*p < .001

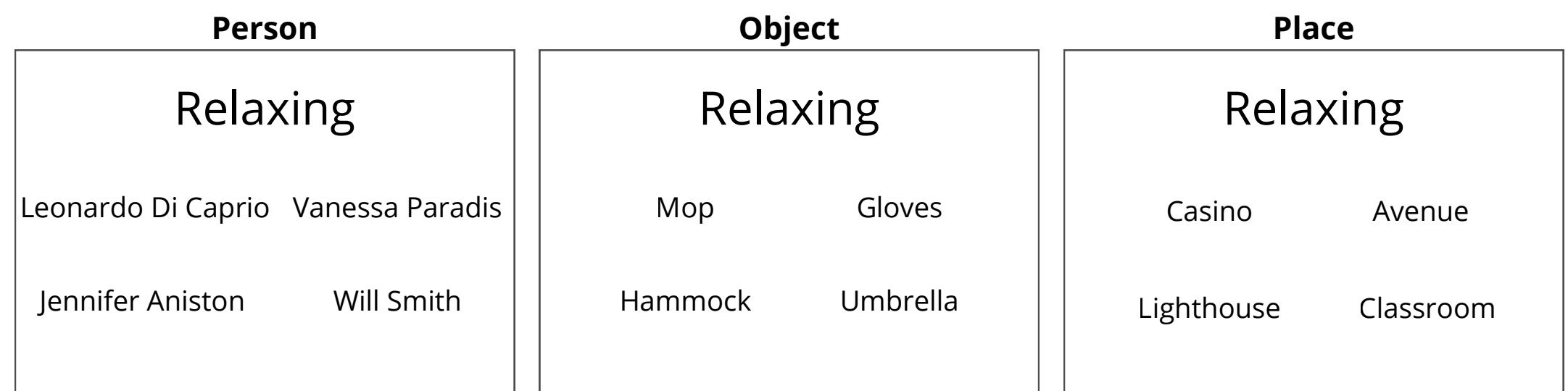
### Encoding



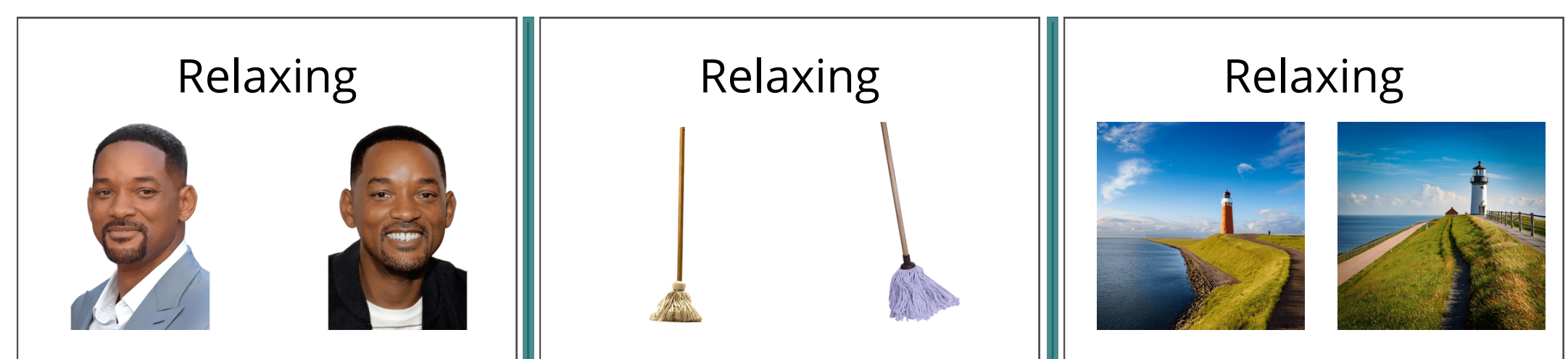
Adapted from Cooper & Ritchey (2022)<sup>3</sup>

### Retrieval

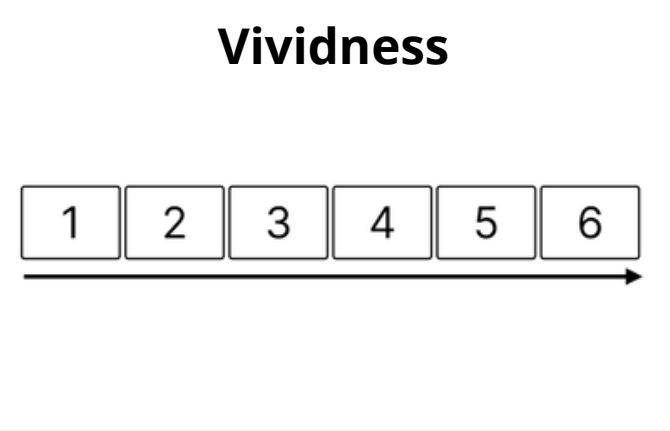
#### Gist memory



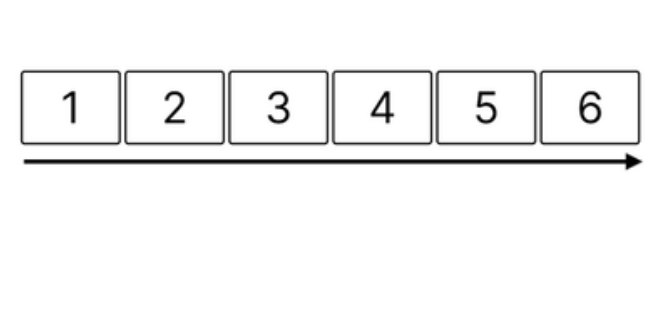
#### Detail memory



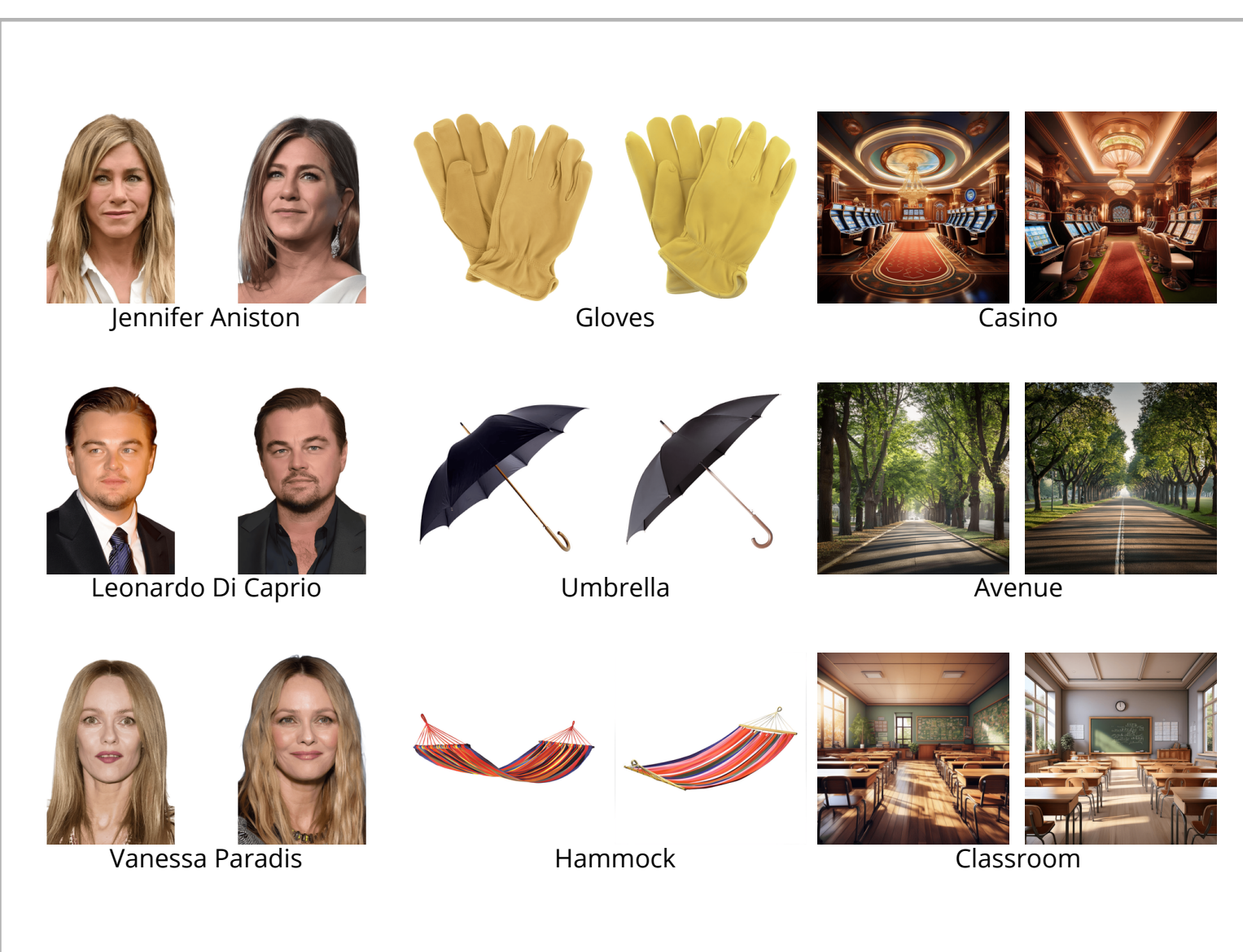
#### Subjective ratings



#### Confidence

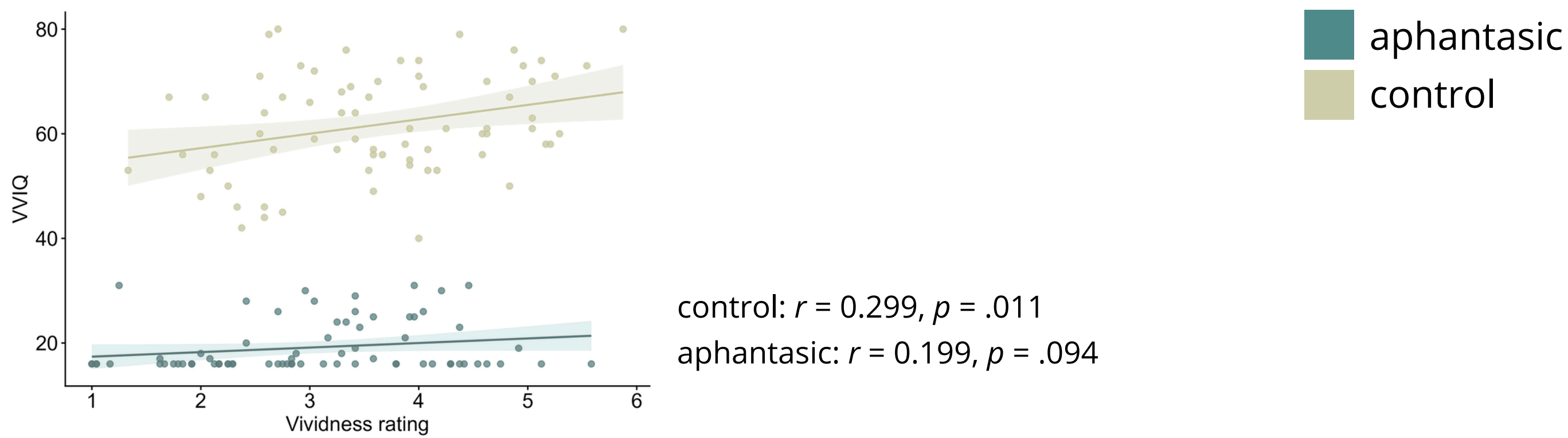


#### Additional stimuli illustrations

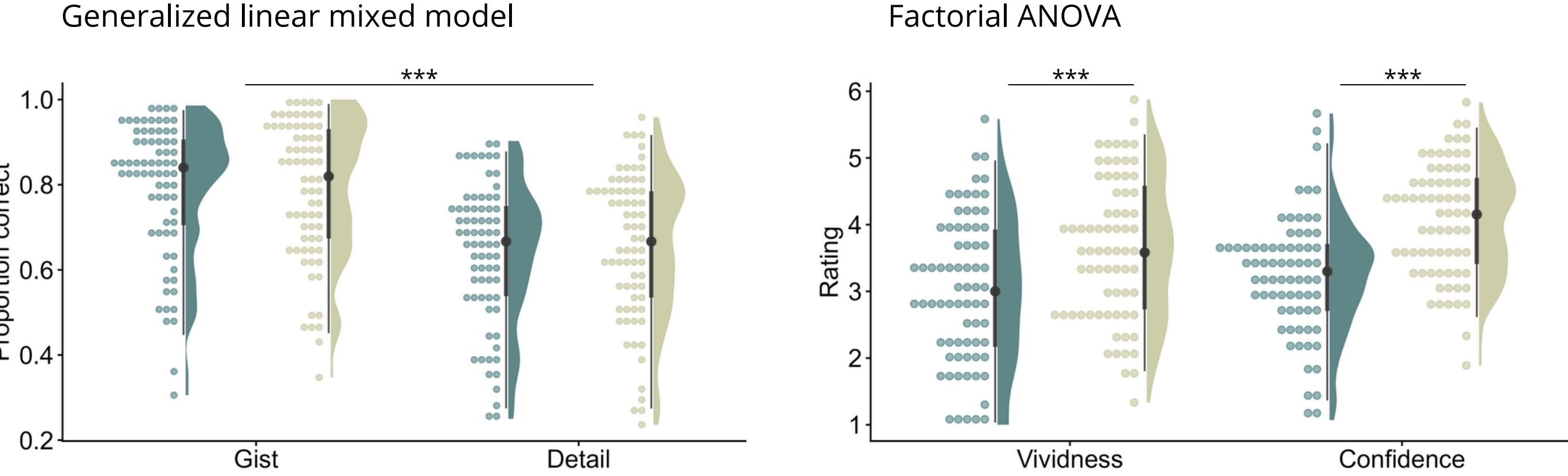


## Results

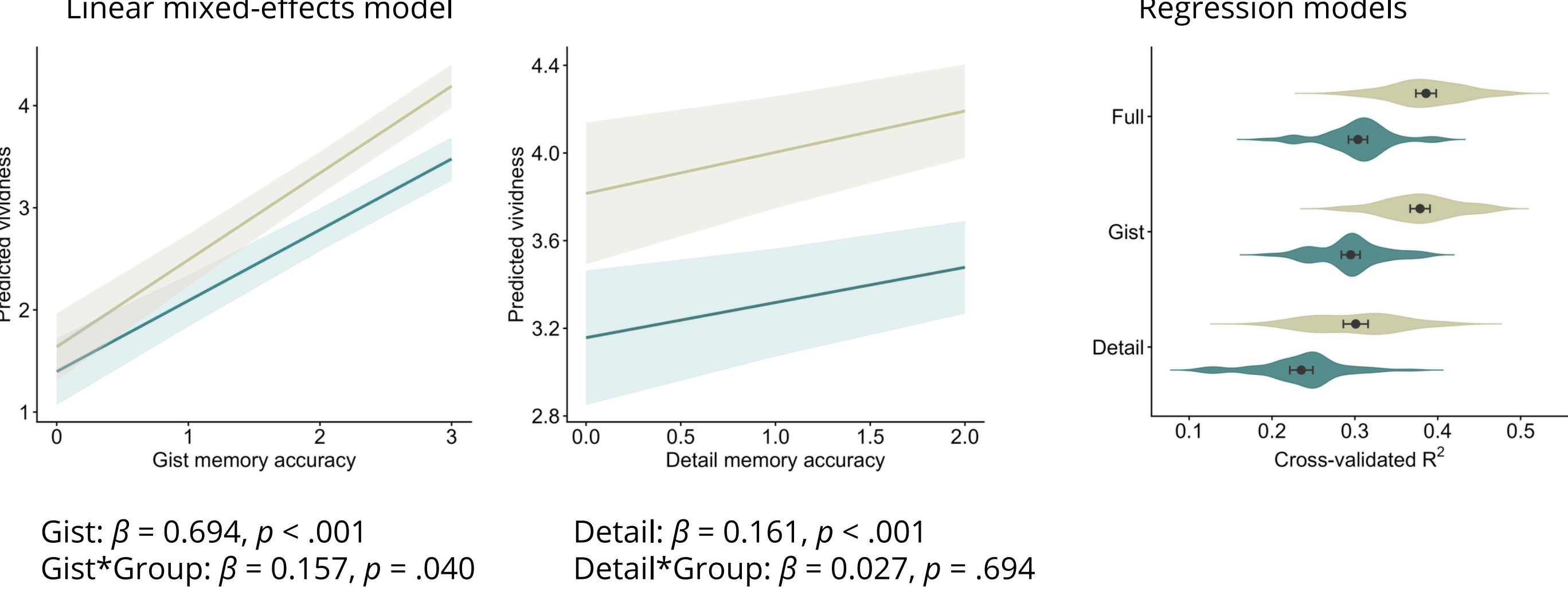
### State and trait measures of vividness



### Group comparisons



### Predicting vividness



## Discussion

Despite comparable memory accuracy, individuals with aphantasia reported **lower subjective vividness and confidence** than controls, consistent with previous findings<sup>1</sup>.

In both groups, vividness was **primarily predicted by gist memory**, with a smaller contribution from detail memory, replicating previous findings<sup>3</sup>.

Contrary to our hypothesis, the association between gist memory and vividness was **weaker** in individuals with aphantasia than in controls.

Comparable objective memory performance despite reduced vividness may reflect: (1) the use of alternative strategies, (2) altered metacognitive awareness of memory representations; or (3) visual mental representations without conscious access.

### Limitations

- Task sensitivity: May not have been sensitive enough to detect subtle differences in memory accuracy;
- Within-trial order: Assessing gist before vividness may have overestimated the relative contribution of gist;
- Sampling bias: Heterogeneity within the aphantasic group (VVIQ ≤ 32) and group differences in task engagement.

## References

- Siena & Simons (2024), *Journal of Cognitive Neuroscience*
- Bainbridge et al. (2021), *Cortex*
- Cooper & Ritchey (2022), *Memory & Cognition*

